VARIABLE TENSION FASTENING SYSTEM FOR VEHICLE COVERS

FIELD OF THE INVENTION

The present invention relates to fasteners, and more specifically to a variable tension fastener system for vehicle covers.

BACKGROUND OF THE INVENTION

It has become apparent that the current methods of attaching canvas tops to vehicles, (for example, boats, trucks, jeeps and other recreational or commercial vehicles), are insufficient when the canvas or other cover material loses its elasticity, such as due to age or cold weather. For example, canvas or other similar covering materials tend to lose their ability to tension or lose its "stretch" as it ages, and a cover or top might not fit the vehicle that it was designed for in only a matter of years after being exposed to the elements. This presents a problem in that it requires great strength and finesse to attach, for example, a boat top when one needs it most, either at night when it is colder or in rainy and cold conditions. Often, it is not the entire top that does not fit, but rather only a portion located in the highest stretch areas, that also unfortunately, give the top structure its strength.

One of the more common type of fasteners is the dome fastener which is a two piece fastener resembling a snap button. One side is attached to the fabric top and the other side is fastened to the vehicle. In the case of a marine craft or boat, it is attached to the boat's hull. These two sides are supposed to easily attach to each other but with age and repeated use, this is not always so easy a task.

SUMMARY OF THE INVENTION

According to one aspect of the present invention, there is provided a stand-alone fastening system installed in place of existing fasteners in hard to close areas of the cover. It would be attached to the fabric in much the same way as a conventional dome fastener. The vehicle-mounted side of the fastener would simply be attached through suitable means, ie a screw or the like, to the vehicle. This would allow for simple and easy installation at the assembly stage from a manufacturers point of view.

According to a second aspect of the present invention, there is provided a two piece fastener system is adapted to be attached by a user, by simply attaching the fastener directly to the existing domes and in the case of a marine vehicle, on both the fabric and hull. Ideally, the female piece would have a wire loop with a dome backing on it, the male would have a racheting arm or lever with a corresponding dome fastener thereon.

Alternatively, either of the above embodiments could be used in any combination to achieve the desired result. Both male and female sides of the fastener could be either used on the fabric or canvas or the hull itself depending on the required installation. Both embodiments are adapted to alleviate the lack of stretch in a given area and could be attached to the hull and fabric as required.

In another aspect, there is provided a variable tension fastener for attaching, and tensioning, a cover over a vehicle, comprising a first member for attachment to a peripheral portion of a vehicle and a second member for attachment to a cover; one of the members comprising a loop, the other of the members comprising a hinged lever pivotal about a pivot and including a male member for extending through said loop and having a series of transverse recesses spaced sequentially from the pivot for selective engagement with said loop; pivoting of

the lever about the pivot, to a closed position, tensions the cover and attaches the cover to a vehicle

In a specific term of the invention, the vehicle is a marine vehicle or craft.

According to a particular aspect of a fastener as defined above, the first member includes independent means for attaching the first member to a vehicle.

In another aspect of a fastener as defined above, the first member includes means for releasably attaching the first member to existing attachment means on a vehicle.

In a further aspect, a fastener as defined above, further includes locking means for locking the lever in a closed position.

Accordingly to another aspect of the present invention, there is provided boat cover having a plurality of attachment members positioned around the periphery, each attachment member including a loop; a plurality of attaching and tensioning members attached to a boat, positioned for cooperation with the attachment members on the cover, each attaching and tensioning member comprising a lever pivotal about a pivot and including a male member for extending through said loop of an attachment member of the cover, the male member having a series of transverse recesses spaced sequentially from said pivot for selective engagement with the loop; pivoting of each of the levers about the pivots, to closed positions, and attaching the cover to a boat and tensioning the cover.

In another aspect, a boat cover as above, includes means for releasably attaching
the attachment members to existing fasteners on the cover.

In yet a further aspect, a boat cover as above, includes means for releasably attaching the attaching and tensioning members to existing fasteners on the boat.

In a further aspect, a boat cover as above, includes locking means on the attaching and tensioning members for releasably locking said levers in a closed position.

According to another aspect of the present invention, there is provided in combination a boat and a boat cover, said boat including a plurality of first members attached to a boat, each first member including a loop; the cover including a plurality of second members attached to and spaced around the cover for engagement with the first members on a boat, each of the second members comprising a lever pivoted about a pivot and including a male member for extending through a loop of a corresponding first member, the male member having a series of transverse recesses spaced sequentially from a pivot for selective engagement with a loop; pivoting of the lever about said pivots to a closed position tensioning the cover and attaching the cover to a boat.

The combination as defined above, wherein the first members attached to existing
fasteners on a boat and the second members attached to existing fasteners on the cover.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a sectional perspective elevational view of a fastening system according to the present invention mounted to a boat, with the fastening system in an unfastened condition;

Figure 2 is an enlarged view of the first portion of the system, in an unfastened condition;

Figure 3 is an enlarged view of the second portion of the system attached to a fabric cover material of Figure 1;

Figure 4a is an enlarged side view of the first and second portions in a fastened position of the embodiment illustrated in Figure 1;

Figure 4b is an enlarged side view of an alternative embodiment of the present invention; and

Figure 5 is a sectional view of the alternative embodiment illustrated in Figure 4b mounted to a boat.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings, the fastening device of the present invention according to a preferred embodiment includes a two piece fastening system, generally indicated by reference numerals 6 and 8, denoting the first and second portions of the system, respectively. As illustrated, the embodiments are directed to the specific example of a marine vehicle or craft such as a boat. It will be understood by those skilled in the art that such fastening system as described herein may also be utilized on other types of vehicles, such as open deck vehicles. Such vehicle types may include, but are not limited to boats, trucks, jeeps or other vehicles having an area which is adapted to be covered or enclosed by a covering material. For example the bed of a pick-up truck is typically covered by a canvas or other suitable covering material which is fastened and tensioned to the sides. Jeeps or other SUV types of vehicles also may include a "soft cover" which is fastened and tensioned to the frame of the

jeep or vehicle to enclose or otherwise protect the interior of the vehicle.

As illustrated, in a specific example of use on a marine craft or boat, the first portion 6 is adapted to be attached to the boat hull or side 100, and includes a male portion, such as a clamping arm or lever generally indicated by reference numeral 10, which is pivotally mounted by a pin or axle 20 to a support or base member 30. The second portion 8 is adapted to attach with the boat cover 150, and engage with the arm or lever portion 10 of the first portion 6.

The lever 10, as illustrated in Figures 1,2, 3, 4a and b, includes an upper surface 12, a bottom surface 14 and sides 22 and 24. In a preferred embodiment, the upper surface 12 is generally curved between the two sides 22 and 24, for example in a generally "C" shaped configuration, although other suitable configurations are possible. The bottom 14 includes a plurality of transverse recesses or indentations 16, which are adapted to receive a support member mounted or otherwise disposed on another corresponding member 50. Ideally, the arm or lever 10 is secured to the base member about the pin or axle 20. Suitable hinge members may also be employed in the place of the pin or axle 20. In any case, the arm 10 is attached such that the arm or lever 10 has a swinging range of about 180 degrees, or more depending on its mounted position to the boat hull or sides 100. In its closed position, the arm or lever 10 matingly interlocks with the base member, described in greater detail below.

The arm or lever 10 further includes detent means 18, which is adapted to interlock with a mating or receiving portion in the base member 30. As illustrated, the detent means 18 is in the form of a pin or button. Suitable shapes or configurations may be employed to ensure that the arm remains in place when interlocked with the mating 44 portion of the base member 30. The pin 18 is adapted to matingly interlock with a detent receiving portion 44 on the base member 30. The receiving portion or member 44, as illustrated in Figures 1, 2

and 4, corresponds to the shape and configuration of the detent 18. Alternatively, other suitable detent means known in the art could be used to lock the arm or lever 10 in place with the base member 30. Alternatively, it is also contemplated by the present invention that the arm or lever 10 may be provided with a suitable hinge or the like, such that the arm is tensioned into place without the need for detent means.

The base member 30 is adapted for placement on a boat hull or sides 100 in interlocking engagement with a conventional dome shaped fastener. The base member 30 includes an upper portion 32, having a generally curved configuration between the sides 38 and 40. The base member as illustrated in Figures 2, 4a and 4b includes a recess 34 which substantially corresponds to the shape of the dome shaped fastener, generally indicated by reference numeral 200. The recess 34 includes a peripheral rim or shoulder portion 36, adapted to engage over the head or top portion of the dome shaped fastener 200. As understood by those skilled in the art, the main or base member is suitably attached to the boat hull or sides 100 in a conventional manner, with the mating or second corresponding piece, generally indicated by reference numeral 220, being attached to the canvas or boat cover 150.

The second portion generally indicated by reference numeral 8 includes a corresponding member or body portion 50, which when viewed in an "in-use" orientation (as illustrated in Figures 3, 4a and b on a cover 150), member 50 includes a lower portion 52, and a snap or button member 54 including a peripheral shoulder or rim 56 for engagement with an existing portion of the dome 220 on the cover. Member 50 further also includes an upper portion 58, and sides 62 and 64. Member 50 further includes a support 70 is female formation, for example a loop, suitable for engagement with the arm or lever 10. As illustrated, the support 70 is disposed on the side 64, facing the arm or lever 10. The support 70, according to a preferred embodiment, is in the form of a loop

for engagement within the recesses or indentations or teeth 16 of the arm or lever 10. Dome 220 on the canvas or cover 150 as illustrated may include a rivet 222, illustrated in a cut away view of Figure 3.

Preferably, the material used for the fastener system of the present invention would be constructed of, or covered in, a suitable material that would not mar the finish on boats, or the fabric used for th cover itself. Suitable materials may include appropriate metals, plastics or a combination of two or more materials, known to those skilled in the art.

Further, either of the first or second portions 6, 8 respectively, may include means for attachment to the boat hull or cover for example suitable means to fasten the member to the appropriate location on either the boat or the cover. Such means may include fasteners and or attachment means for attaching the portions 6 and or 8 to the hull, or to the cover.

According to one embodiment of the present invention, in operation the user attaches the first portion 6 of the fastener over an existing dome or snap type button fastener on the boat hull or sides 100. The user further attaches the second portion 8 over the dome or button snap on the existing boat cover 150, with the loop or support member 70 facing towards the first portion 6. However, as noted above, the location of the first and second members 6 and 8, respectively, can be used on either the boat or hull 100 or the cover portion 150.

To interlock the first and second portions together, the user places the support or arm 70 (i.e. a female portion) over the arm or lever 10 and engages the support 70 within one of the recesses 16. The arm or lever 10 is then pivoted about the axle or pin 20 to a closed position on the base member 30. Depending upon the desired tension of the cover, the user may select a recess or indentation to provide the appropriate or desired tension to the cover 150. By

placing the support 70, for example a wire loop, into one of the indentations or recesses on the arm or lever 10, and pulling the arm back and down on the base member 30, a variable tension fastening system is realized.

Alternatively, if the user so desires or if the existing fastener is insufficient for attaching the male or female end thereto, the user may attach the female portion of the fastener system directly to the boat hull or side 100, with the opposed male portion suitably attached to the cover 150 as illustrated in Figures 4a and 5. As illustrated a suitable fastener 111, such as a screw, nail or other known fastener may be used to secure the female portion 30 to a portion of the boat hull or decking 100. As understood in the art, typically such fasteners are placed on an upper portion of the sides of a boat.

In a further alternative embodiment it will be understood that the deck sides or hull may include a recess to receive the member 6 therein, such that the sides of the hull are unbroken when viewed from horizontal perspective.

Although the above embodiment has been described and illustrated with respect to a marine craft or vehicle, it will be appreciated that the fastening system can be used for other vehicles to attach and tension a covering material over an open portion thereof. For example, through the use of the term cover of covering material, one skilled in the art to which the present invention pertains would understand that various types of straps and extensions associated with these covers are within the scope of the present invention. Such straps or extensions may include those associated with, for example, "bimini tops" or the like which include straps or extensions which are connected to the cover or covering material. The fastening system of the present invention would be suitably attached or fastened to the extension or strap and to the marine vehicle.

It will be understood that various modifications can be made to the above

described embodiments without departing from the spirit and scope of the present invention and the preferred embodiments described.

Although preferred embodiments of the invention have been described above, it is not limited thereto and it will be apparent to those skilled in the art that numerous modifications form part of the present invention insofar as they do not depart from the spirit or scope of the invention as defined in the accompanying claims.